

REMARKS

Claims 1, 3-15, 17-19 are now pending in the application. Claims 2 and 16 have been previously cancelled, and Claims 1, 3, 11 and 19 have been amended herein. Support for the amendments can be found throughout the application, drawings and claims as originally filed and, as such, no new matter has been presented. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claims 1-10 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. Applicants have amended Claim 1 to overcome this rejection. Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. § 102

Claims 1, 6, 8, 10-14 and 17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Shimodaira et al. (U.S. Pat. No. 4,807,969; hereinafter "Shimodaira"). This rejection is respectfully traversed.

With regard to Shimodaira, Applicants note Shimodaira appears to disclose a reflector formed by placing a thin glass plate 7 and a prepreg 3 into a forming mold 1 and applying heat and pressure to bond the glass plate 7 to the FRP 4. The curing of the resin in the prepreg 3 transfers the shape of the forming mold 1 to the FRP 4 (see at

least Column 1, lines 25-28). Then, a reflecting film 2 is deposited onto the surface of the glass plate. The forming mold 1, as shown, places the rear surface of the glass plate 7 in a state of tension. The curing of the resin merely serves to ensure the glass plate 7 maintains the curved shape of the forming mold 1, and there is no teaching or suggestion whatsoever of the resin being capable to overcome the state of tension in the rear surface to place the rear surface in a state of compression. Shimodaira also does not disclose whatsoever forming a reinforcing structure formed by applying a resin in a liquid state to the reinforcing member or securing a support member to the reinforcing structure to support the glass structure. In contrast, independent Claim 1 recites:

...providing a glass member with a front surface and a rear surface and a reinforcing member;

* * *

securing a reinforcing structure to the rigid interlayer, the reinforcing structure formed by applying a resin in a liquid state to the reinforcing member; and

securing a support member to the reinforcing structure **to support the glass structure and to facilitate the mounting of the glass structure** (emphasis added).

Independent Claim 11 recites:

...securing the reinforcing structure to the rear surface of the mirror, the reinforcing structure **supporting the mirror and facilitating the mounting of the mirror** (emphasis added).

In view of the above discussion, Applicants respectfully submit Shimodaira does not teach each and every element of Applicants' independent Claims 1 and 11. In this regard, Shimodaira does not teach, suggest or disclose forming a reinforcing structure formed by applying a resin in a liquid state to the reinforcing member or securing a

support member to the reinforcing structure to **support and facilitate the mounting of** the glass structure.

With regard to the application of the resin in the liquid state to the reinforcing member, as noted by the Office, Shimodaira teaches that a fiber-reinforced plastic (FRP) **plate 4** is secured to the rear surface of the glass member. Applicants note that the FRP plate 4 of Shimodaira is not equivalent to the resin as claimed. In particular, the application of the FRP plate 4 to the glass member leaves the glass member **unsupported** in the area of the voids that exist between the reinforcing fibers. Thus, the application of the FRP plate to the glass member would permit the glass member to dimple in response to the compressive forces that are developed when the resin cures. The resin claimed by Applicants provides full and complete support to the glass member, in contrast to the FRP plate 4 of Shimodaira. Applicants also note that there is no teaching, suggestion or motivation in Shimodaira to include a liquid resin material.

With regard to the assertion that Shimodaira teaches securing a support member to the reinforcing structure to support the glass member, Applicants respectfully assert that the combination of the FRP plate 4a with the core material 5 does not constitute a support member capable of **supporting the glass structure and facilitating the mounting of the glass structure** as claimed. Rather, as noted by Shimodaira, the FRP plate 4a is coupled to the core material 5 to enhance the reflective surface of the mirror, specifically, so that “a fine surface” reflector A can be obtained (see at least Col. 3, lines 36-39). Further, as stated above, the FRP plate 4a does not constitute a support member as claimed as the FRP plate 4a leaves the glass member

unsupported in the area of the voids that exist between the reinforcing fibers of the FRP plate 4a.

As the Examiner knows, it is well settled that “the burden of establishing a *prima facie* case of anticipation resides with the Patent and Trademark Office.” *In re Skinner*, 2 USPQ 2d 1788, 1788-89 (B.P.A.I. 1986). If the examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent. *In re Oetiker*, 977 F.2d 1443, 24 USPQ 2d 1443 (Fed. Cir. 1992).

In *W.L. Gore & Associates v. Garlock, Inc.*, the Federal Circuit stated that “anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). It is not enough, however, that the reference disclose all the claimed elements in isolation. Rather, as stated by the Federal Circuit, the prior art reference must disclose each element of the claimed invention “*arranged as in the claim*”. *Lindermann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984).

Applicants note, however, that anticipation may reside even if the prior art reference relied on does not expressly disclose a minor aspect of the claimed invention. Under the principles of inherency, if a structure in the prior art necessarily functions in accordance with the limitations of a process or method claim of an application, the claim is anticipated. *In re King*, 801 F.2d 1324, 231 USPQ 136, 138 (Fed. Cir. 1986). The Federal Circuit has stated:

To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled

with recourse to **extrinsic evidence**. Such evidence **must make clear that the missing descriptive matter is necessarily present in the thing described** in the reference and that it would be so recognized by persons of ordinary skill. *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ 2d 1746, 1749 (Fed. Cir. 1991) (emphasis added).

In this regard, the CCPA has added that "[i]nherency, however, **may not be established by probabilities or possibilities**. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient." *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (C.C.P.A. 1981) (quoting *Hansgirk v. Kemmer*, 102 F.2d 212, 214, 40 USPQ 665, 667 (C.C.P.A. 1939) (emphasis added)).

Applicants submit that the Shimodaira reference is silent about the asserted inherent characteristic of securing a support member to the reinforcing structure to support the glass member, and, moreover, the Office has not presented any **extrinsic evidence** that would make clear that the missing descriptive matter is necessarily present in the Shimodaira reference, and that it would be so recognized by persons of ordinary skill in the art. Furthermore, Shimodaira does not teach, suggest or disclose whatsoever either the mounting of the glass assembly or the use of a support member secured to the reinforcing structure to facilitate the mounting of the glass assembly as claimed.

Accordingly, in view of the above discussion, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of Claims 1 and 11 under 35 U.S.C. § 102(b). In addition, as Claims 6, 8, 10, 12-14 and 17 depend directly or indirectly from independent Claim 1 or 11, Applicants submit these claims are patentable and in condition for allowance for the reasons discussed above with regard to Claims 1 and 11.

Thus, Applicants respectfully request the Examiner reconsider and withdraw the rejections of Claims 6, 8, 10, 12-14, and 17 under 35 U.S.C. § 102(b).

REJECTION UNDER 35 U.S.C. § 103

Claims 7 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shimodaira et al. as applied to Claims 1, 6, 8, 10-14 and 17 above. Claims 15 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shimodaira et al. as applied to Claims 1, 6, 8, 10-14 and 17 above, and further in view of Stang (U.S. Pat. No. 4,124,277; hereinafter "Stang"). These rejections are respectfully traversed.

Applicants note Claims 7, 9, 15 and 18 depend directly or indirectly from independent Claims 1 or 11 and should in condition for allowance for the reasons discussed above with regard to Claims 1 and 11. Further, with regard to Claim 7, Applicants respectfully submit one of skill in the art would not be motivated to modify Shimodaira to include vacuum forming, as noted to be a conventional forming technique by the Office. In particular, Shimodaira teaches away from using conventional forming techniques as conventional forming techniques. Specifically:

It is established that where references, instead of suggesting the invention, **seek or warn to avoid the suggestion**, such references diverge from and teach away from the invention at hand and it is error to find obviousness based on such references.

In re Fine, 837 F.2d 1071, 1074, 5USPQ2d 1596, 1599 (Fed. Cir. 1988) (emphasis added). In this regard, Shimodaira teaches that the use of conventional forming techniques can produce a cavity or recess in the reflective surface. Accordingly, one of ordinary skill in the art would not attempt to apply various other forming techniques to

the disclosure of Shimodaira as Shimodaira expressly teaches that other, conventional, forming techniques result in undesirable characteristics. Applicants thereby assert that Claim 7 has independently allowable subject matter. In addition, Applicants respectfully request the Examiner reconsider and withdraw the rejections of Claims 7, 9, 15 and 18 under 35 U.S.C. § 103(a).

Claims 1 and 3-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schreiber et al. (U.S. Pat. No. 3,382,137; hereinafter "Schreiber"). This rejection is respectfully traversed.

At the outset, Applicants note that Schreiber appears to disclose merely forming a laminate structure composed of a first layer of a thin glass sheet 10, a second layer of resin 11 and a third layer of a second glass sheet 10. The laminate is formed by placing two rubber gaskets 22 between the glass sheets 20, which are held together by clamps 23 as the resin flows into an area defined between the sheets. The resin 11 is heated to cure, and once the resin 11 cures it applies compressive force to the rear surface of the first glass sheet and the front surface of the second glass sheet. The rear surface of the second glass sheet is in tension. In contrast, independent Claim 1 has been amended to recite:

...providing a glass member with a front surface and a rear surface and a reinforcing member;

* * *

securing a reinforcing structure to the rigid interlayer, the reinforcing structure formed by applying a resin in a liquid state to the reinforcing member; and

securing a support member to the reinforcing structure **to support the glass structure and to facilitate the mounting of the glass structure** (emphasis added).

In view of the above discussion, Applicants respectfully submit Schreiber does not teach each and every element of independent Claim 1. In this regard, Schreiber does not teach, suggest or disclose securing a support member to the reinforcing structure **to support the glass structure and facilitate the mounting of the glass structure**. Rather, Schreiber merely teaches the forming of a laminate, and does not teach, suggest or disclose whatsoever the forming of the laminate to include any type of structure that **facilitates the mounting of the glass structure** as claimed. Further, Applicants note it would be improper to modify Schreiber to include such a limitation as not only is there no suggestion to make such a modification, such a modification would impermissibly modify the method of forming the laminate of Schreiber.

Accordingly, in view of the above discussion, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of Claim 1 under 35 U.S.C. § 103(a). In addition, as Claims 3-10 depend directly or indirectly from independent Claim 1, Applicants submit these claims are patentable and in condition for allowance for the reasons discussed above with regard to Claim 1. In addition, Applicants assert Claim 7 has independently allowable subject matter as to modify Schreiber to include vacuum forming would render the laminate of Schreiber unsatisfactory for its intended purpose. In particular, the Schreiber states that it is an object of his invention to “provide a method for producing superior glass-plastic laminated structures,” which does not include vacuum forming (see at least Col. 1, lines 48-51). Thus, Applicants respectfully request the Examiner reconsider and withdraw the rejections of Claims 3-10 under 35 U.S.C. § 103(a).

Claims 11-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schreiber et al. as applied to Claims 1, 6-8 and 10 above, and further in view of Shimodaira et al and/or Stang. This rejection is respectfully traversed.

Applicants respectfully refer the Office to the remarks regarding Claims 1 and 3-10 for a discussion of the Schreiber reference, and to the remarks regarding Claims 1, 6, 8, 10-14 and 17 for a discussion of the Shimodaira reference. With regard to Stang, Stang appears to disclose a method for forming a mirror facet and employs two mold members 32, 34 to form a facet assembly that consists of a mirror 12, a first sheet of glass cloth 16 impregnated with epoxy resin, a core 18 formed of paper honey comb and a second sheet of epoxy impregnated glass cloth also designated by reference number 16. The mold members 32, 34 are employed to deform the facet assembly and maintain the facet assembly in the deformed condition until the epoxy resin has cured. Thus, the epoxy resin of the Stang reference hardens to thereby resist the natural tendency of the mirror 12 to return to its undeflected state, and does not teach or suggest whatsoever the resin applying a compressive force to the rear surface of the mirror. Further, Stang does not teach the attachment of a support member or structure for supporting or facilitating the mounting of the mirror. In contrast, Claim 11 has been amended to recite:

...securing the reinforcing structure to the rear surface of the mirror, the reinforcing structure **supporting the mirror and facilitating the mounting of the mirror** (emphasis added).

Claim 19 has been amended to recite:

...applying a resin in a liquid state to a surface of the glass member opposite the light reflecting surface;

applying a reinforcing member and at least one support structure to at least one of the surface of the glass member opposite the light reflecting surface and the resin; and

curing the resin such that the resin, the reinforcing member and the support structure cooperate to form a rigid interlayer that **supports the glass member and facilitates mounting of the mirror assembly...** (emphasis added).

In view of the above discussion, Applicants respectfully submit that Schreiber, Shimodaira nor Stang, either singly or in combination, do not teach each and every element of independent Claims 11 and 19. In this regard, Schreiber and Shimodaira, as discussed, do not teach, suggest or disclose whatsoever securing a support member to the reinforcing structure **to support the glass structure and facilitate the mounting of the glass structure**, and further, Shimodaira does not teach, suggest or disclose the application of a resin in a liquid state. Further, Stang does not remedy these shortcomings of Schreiber and Shimodaira, as Stang does not teach the attachment of a support member or structure for supporting or facilitating the mounting of the mirror. In particular, Stang discloses the use of glass cloth impregnated with resin. As discussed, the use of a reinforced fiber material, such as glass cloth, with a resin results in the glass member being **unsupported** in the area of the voids that exist between the glass cloth fibers. Applicants also note it would be improper to modify Schreiber to include such a limitation as not only is there no suggestion to make such a modification, such a modification would impermissibly modify the method of forming the laminate of Schreiber.

Accordingly, in view of the above discussion, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of Claims 11 and 19 under 35

U.S.C. § 103(a). In addition, as Claims 12-18 depend directly or indirectly from independent Claim 11, Applicants submit these claims are patentable and in condition for allowance for the reasons discussed above with regard to Claim 11. Thus, Applicants respectfully request the Examiner reconsider and withdraw the rejections of Claims 12-18 under 35 U.S.C. § 103(a).

Claims 1, 3-15 and 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stang in view of Shimodaira et al. This rejection is respectfully traversed.

Applicants respectfully refer the Office to the remarks regarding Claims 11-19 for a discussion of the Stang reference, and to the remarks regarding Claims 1, 6, 8, 10-14 and 17 for a discussion of the Shimodaira reference. In contrast to the cited references, as discussed, Claim 1 has been amended to recite:

...providing a glass member with a front surface and a rear surface and a reinforcing member;

* * *

securing a reinforcing structure to the rigid interlayer, the reinforcing structure formed by applying a resin in a liquid state to the reinforcing member; and

securing a support member to the reinforcing structure **to support the glass structure and to facilitate the mounting of the glass structure** (emphasis added).

Claim 11 has been amended to recite:

securing the reinforcing structure to the rear surface of the mirror, the reinforcing structure **supporting the mirror and facilitating the mounting of the mirror** (emphasis added).

Claim 19 has been amended to recite:

applying a resin in a liquid state to a surface of the glass member opposite the light reflecting surface;

applying a reinforcing member and at least one support structure to at least one of the surface of the glass member opposite the light reflecting surface and the resin; and

curing the resin such that the resin, the reinforcing member and the support structure cooperate to form a rigid interlayer that **supports the glass member and facilitates mounting of the mirror assembly** . . .(emphasis added).

In view of the above discussion, Applicants respectfully assert that neither Stang nor Shimodaira, singly or jointly, teach, suggest or disclose each and every element of Claims 1, 11 and 19, and thus, Applicants respectfully submit that the combination of references cited by the Office does not present a *prima facie* case of obviousness. The establishment of a *prima facie* case of obviousness requires that three basic criteria be met: 1) that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings; 2) that there must be a reasonable expectation of success; and 3) that the prior art reference or references must teach or suggest all the claim limitations. See, e.g., *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Moreover, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure. *Id.*

Furthermore, to imbue one of ordinary skill in the art with knowledge of the invention in suit, *when* no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. In

re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (citing W.L. Gore & Assocs. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983)).

As discussed, Stang and Shimodaira, either singly or in combination, do not teach, suggest or disclose each and every element of independent Claims 1, 11 and 19. In this regard, none of the cited references teach, suggest or disclose whatsoever securing a support member to the reinforcing structure **to support the glass structure and facilitate the mounting of the glass structure** or the application of a resin in a liquid state. Applicants further assert that, as also previously discussed, the use of a rigid interlayer that includes a fabric, such as a glass cloth, impregnated with an uncured epoxy resin causes the glass member to dimple in response to the compressive forces that are developed when the resin cures since the glass member is **unsupported** in the area of the voids.

Accordingly, in view of the above discussion, Applicants respectfully request the Office to reconsider and withdraw the rejection of Claims 1, 11 and 19 under 35 U.S.C. § 103(a). With regard to Claims 3-10, 12-15, 17 and 18, Applicants note these claims depend directly or indirectly from either independent Claims 1 or 11 and, thus, should be in condition for allowance for the reasons set forth for Claims 1 and 11 above. Accordingly, Applicants respectfully requests the Office reconsider and withdraw the rejections of Claims 3-10, 12-15, 17 and 18 under 35 U.S.C. § 103(a).


CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request

that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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